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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 823,992	04.03.2001	Martin Green	GRE001	6426

7590 07.10.2003

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EXAMINER

SOUW, BERNARD E

ART UNIT PAPER NUMBER

2881

DATE MAILED: 07/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/823,992

Applicant(s)

GREEN ET AL.

Examiner

Bernard E Souw

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 03/08/2003 (Paper No. 10).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 35-77 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 35-77 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/03/2001 (Paper No. 4) is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8,9
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Preliminary Amendment

1. The Preliminary Amendment filed 03/08/2003, Paper #10/a, has been entered.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), (GB-0029040.3), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 35-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yano et al. (USPAT # 5,747,800) in view of Gregory et al. (WO 98/50941) and further in view of general knowledge in the art.

4. Regarding claims 35, 54, 55 and 77, Yano et al. disclose a mass spectrometer comprising:

- an ion source 1, as shown in Fig.1(a) and recited in Col.3/II.1-8;

- a lens (3,4,5) downstream of the ion source 1, wherein in a first high sensitivity mode of operation the lens (3,4,5) focuses a beam of ions 2, as shown in Fig.1(b) and recited in Col.4/ll.43-45, and in a second low sensitivity mode of operation the lens substantially defocuses the beam of ions 2, as shown in Fig.1(c) and recited in Col.4/ll.45-47;
- a mass analyzer (8,9,10,11) as shown in Fig.1(a) and recited in Col.3/ll.18-33, the mass analyzer comprising an ion detector 12 shown in Fig.1(a), as recited in Col.4/ll.8-14; and
- control means arranged to switch the lens (3,4,5) from the first high sensitivity mode shown in Fig.1(b) to the second low sensitivity mode shown in Fig.1(c) upon determining that particular mass peaks in a mass spectrum are saturating or approaching saturation and mass peaks within a particular mass range in a mass spectrum are saturating or approaching saturation, as shown in Fig.2 and recited in Col.4/ll.66-67 & Col.5/ll.1-37.

Although the limitation that a *"particular mass peaks in a mass spectrum are saturating or approaching saturation and mass peaks within a particular mass range in a mass spectrum are saturating or approaching saturation"* is not specifically recited with the exact wording in Yano's, the condition is well known in the art, as indicated by Gregory et al. in the Abstract regarding the purpose of *"extending the dynamic measurement range of the spectrometer relative to that of the detector"* recited in lines 2-3, which is understood by one of ordinary skill in the art as being the same as the last limitation of claim 35 recited above, which can be achieved by *"modifying the ion beam before it enters the mass analyzer"* as recited in line 8, which is understood by one of

ordinary skill in the art as being the same as adjusting the lens to defocus the ion beam as recited in the present claim.

► Claim 54 is a method claim reciting the same limitations as the above rejected device claim 35.

► Claim 55 is a device claim reciting essentially the same limitations as the above rejected claim 35, wherein the limitation of regularly switching back and forth between the first high sensitivity mode and the second low sensitivity mode is a mere matter of design choice that does not alter the functional conditions of the device or method, and furthermore, involves only routine skill in the art, and is therefore unpatentable.

► Claim 77 is a method claim reciting the same limitations as the above rejected device claim 55.

5. Regarding claims 37-39, and 57-59, Yano's electrostatic lens system (3,4,5) is a z-focusing lens, which is an Einzel lens comprising a front 3, intermediate 4, and rear electrode 5, with voltages applied to each of them, including specific voltages being applied to the middle electrode (Yano's lens 4) for the high and low sensitive modes, as recited by Yano in Col.4/ll.15-24.

6. Regarding claim 36 and 56, the addition of a y-focusing lens to simplify the defocusing step is conventional and well known in the art, since for that purpose only one direction perpendicular to z (optics axis) and another direction parallel to the spectrometer slit (y-axis) are involved.

7. Regarding claims 40, 41, 60 and 61, the recitations of a power supply capable of specific voltages and the type of the lens (3,4,5) is either inherent in Yano's, or a conventional and well known variant thereof, and are therefore unpatentable.

8. Regarding claims 42-44 and 62- 65, the focusing conditions for the ion beam in the high and low sensitivity modes are depicted by Yano et al. in Fig.1(b) and Fig1(c) respectively, as already recited above, whereas the specific percentages of the ion beams transmitted by the spectrometer entrance slit 7 in each of the sensitivity modes are already inherent in Yano's.

9. Regarding claims 45 and 66, an at least 10x difference in sensitivity between the high and low sensitivity modes is a mere matter of design choice which does not affect the functioning of the device or method, and furthermore, involves only routine skill in the art, and is therefore unpatentable.

10. Regarding claims 46, 48, 67 and 69, Yano's ion source 1 in Fig.1(a) is a continuous ion source, specifically coupled to a gas chromatograph, as recited in Col.3/ll.8-17.

11. Regarding claims 47, 49, 68 and 70, the recited types of ions sources are obvious variations of the ion source type already rejected in claims 46, 48, 67 and 69 above.

12. Regarding claims 50 and 71, Yano's ion source shown in the embodiment of Fig.4 is coupled to a liquid chromatograph, as recited in Col.6/ll.3-6.

13. Regarding claims 51 and 72, Yano's mass analyzer or spectrometer comprises a Time to Digital Converter, which is inherent in the data processing device 44 shown in Fig.1(a) and recited in Col.4/ll.12-15.

14. Regarding claims 52 and 73, Yano's mass spectrometer is a quadrupole mass analyzer, as recited in Col.3/ll.18-23.

15. Regarding claims 74 and 75, the amount of time the spectrometer spends in the low and high sensitivity modes is not critical for the functioning of the device or method, and is therefore a mere matter of design choice involving only routine skill in the art. Claims 74 and 75 are therefore unpatentable.

16. Regarding claim 76, the limitation that the lens is arranged to switch between at least three different sensitivity modes is not critical for the functioning of the device, and

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is therefore a mere matter of design choice involving only routine skill in the art, and hence, unpatentable.

17. Regarding claim 53, the limitation that that the particular mass range of claim 35 includes a range having the specified mass to charge ratios, is again a mere matter of design choice involving only routine skill in the art, and hence, unpatentable.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard E Souw whose telephone number is 703 305 0149. The examiner can normally be reached on Monday thru Friday, 9:00 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 703 308 4116. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9318 for regular communications and 703 872 9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

bes
June 29, 2003

